DEVELOPING WATERSHED PROTECTION CRITERIA FOR GEORGIA

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BACKGROUND

Most smaller public water systems in north Georgia have traditionally used groundwater; those that used surface water had little development in upstream watersheds and little need for watershed protection. The droughts of 1981, 1986 and 1988 reinforced the need for more dependable water supplies in north Georgia. Groundwater supplies were generally inadequate and reinforced the need to shift to surface water. However, most surface water sources are small, so reservoirs are needed for reliable drought supplies and to meet future growth (Georgia Environmental Protection Division, 1987).

Regulation of land use above smaller reservoir/intake watersheds will be necessary to protect water quality in developing areas, because acquisition is generally not practical. Traditionally (and by state constitution), land use regulation is a local responsibility. Watershed boundaries, however, seldom follow political boundaries. A small grants program initiated by the Department of Natural Resources (DNR), Environmental Protection Division (EPD) in 1987 for reservoir planning met with limited success in promoting watershed protection. This was probably due to the difficulties of resolving interjurisdictional conflicts between local governments. The Governor's Growth Strategies Commission recognized the problem in its final report and recommended:

(1) Minimum standards for watershed protection in regional and local planning.

(2) Local authority to enforce watershed protection standards.

(3) Administrative procedures to resolve disputes at the regional or state level.

(4) Regional review of local compliance with State guidelines.

(5) Authority at the state level to deal with multi-jurisdictional settings to ensure that all affected parties are brought together to plan for entire watersheds, using Regional Development Center (RDC) boundaries whenever possible (Governor's Growth Strategy Commission, 1988).

THE GROWTH STRATEGY PLANNING PROCESS

The Georgia Comprehensive Planning Act (HB 215) was passed by the General Assembly in its 1989 session. Part 5 of the Act contained language authorizing DNR to develop minimum standards for watershed protection (as well as for critical aquifer recharge area protection and wetlands mapping). The General Assembly also took the unusual step of requiring that planning standards prepared under the Act be subject to its ratification when completed.

DNR staff met with representatives of various interests (business, environmental, forestry, mining, local governments (city and county), planners, etc.) to learn their concerns on watershed protection, in a similar fashion to the focus groups used in the Growth Strategy Commission's previous work. A complicating factor in developing watershed protection guidelines was the lack of applicable data on the standards implemented in other states. This is a particularly difficult problem because water quality maintenance through watershed protection involves such a range of variables (climate, watershed/reservoir size, geology, soil and vegetation types, slopes, etc.) (Jean, 1987).

The University of Georgia, Institute for Community and Area Development (ICAD) publication "Watershed Protection: A Guidebook for Georgia" was very helpful in developing watershed protection guidelines (Cowie, et al, 1988). Different approaches to watershed protection were reviewed, including:

- Stream and/or reservoir buffer zones and setbacks;
- Density limitations;
- Impervious surface limits;
- Stormwater management;
- Prohibition of potentially threatening uses (zoning); and
- Performance - standards requirements (performance zoning).

The problem was thus defined as how to implement criteria adequate to protect municipal water supplies while not posing an undue burden on the private and local governments in affected areas.

The key meeting was a two-day workshop facilitated by ICAD in October 1989 where several points of agreement emerged:

(1) Watershed protection is absolutely necessary to assure a future reliable drinking water supply in north and central Georgia.

(2) Large watersheds above municipal intakes are believed to be adequately protected by existing water quality standards.

(3) Small watersheds are more vulnerable to contamination and sedimentation than larger watersheds.

(4) No single approach to watershed protection appeared adequate.

(5) Adequacy of buffer widths and percentages of impervious surfaces allowed are both difficult to quantify with much precision based on available information. However, to be effective, they need to be applied over the entire water supply watershed.

(6) Some land uses (e.g., hazardous materials disposal) must be excluded from water supply watersheds.

WATERSHED PROTECTION CRITERIA

The criteria adopted reflected the above consensus opinions of the multiple-interest group, with additions to provide necessary flexibility, including:

(1) A provision that local governments may adopt more restrictive standards, if they deem them necessary.

(2) A provision that alternative plans may be submitted if protection equivalent to the Comprehensive Planning Act criteria is provided.

(3) A broad provision requiring reservoir management plans that allows them to be tailored to site-specific conditions, subject to DNR review and approval (Georgia Environmental Protection Division, 1989).

The watershed protection guidelines adopted by the Board of Natural Resources are summarized in Table 1. Applications of the guidelines to model watersheds are depicted in Figures 1 and 2. The guidelines establish buffers and/or impervious surface limitations for municipal water supply watersheds above both large and small reservoirs, with 100 square miles drainage area being the boundary between the two. Guidelines were also developed for municipal water supply intake watersheds less than 100 square miles in drainage area.

Recommendations for implementation of a successful watershed protection program are as follows.

(1) Collect and assess water quality data in Georgia on the effectiveness of various watershed protection measures.

(2) Establish a formal coordination system among DCA, EPD, RDC's and affected local governments to assure the preparation of consistent watershed protection plans.

(3) Encourage local governments to adopt and enforce watershed protection ordinances consistent with state guidelines.

LITERATURE CITED

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Jean, Paul M., 1987. Watershed Protection Issues for Local Governments in Georgia (unpublished draft). Gwinnett County Planning Department. Lawrenceville, Georgia.

Georgia Department of Natural Resources, Environmental Protection Division, 1989. Rules for Environmental Planning Criteria, Chapter 391-3-16-.01, Criteria for Water Supply Watersheds. Atlanta, Georgia.

TABLE 1. Watershed Protection Criteria

Watershed Size (Sq. Mi.)	Reservoir Buffer (Feet)	Perennial Stream Buffer (Feet)		Perennial Stream Setback (Feet)		Watershed Impervious Surface Density
		Within 7 Mi. Radius	Outside Radius	Within 7 Mi. Radius	Outside Radius	
Intake > 100	None	None	None	None	None	No Criteria
Reservoir > 100	150	100	None	150	None	No Criteria
Intake < 100	None	100	50	150	75	25% or Less
Reservoir < 100	150	100	50	150	75	25% or Less

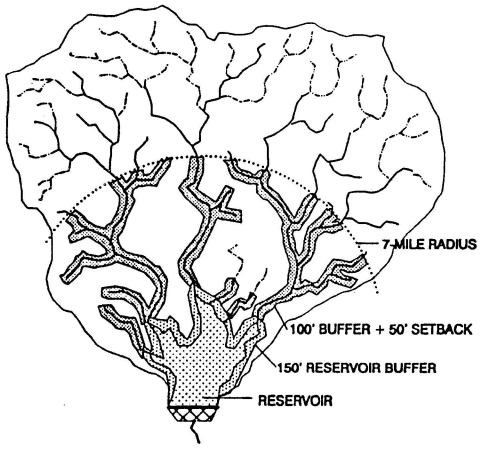
< = Less Than
> = Greater Than

Source: Georgia Environmental Protection Division

FIGURE 1

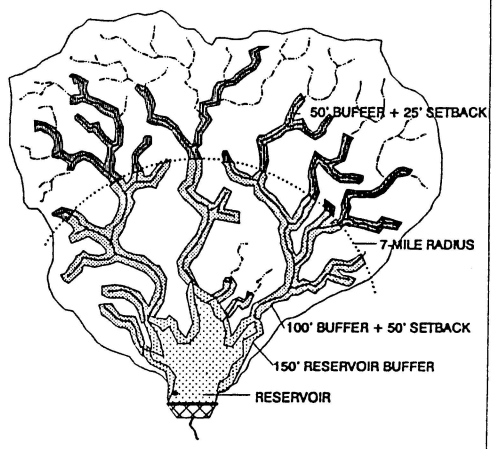
RESERVOIR WATERSHED

100 SQ. MI. OR MORE



RESERVOIR WATERSHED

LESS THAN 100 SQ. MI.



25% IMPERVIOUS SURFACE LIMIT
(ENTIRE WATERSHED)

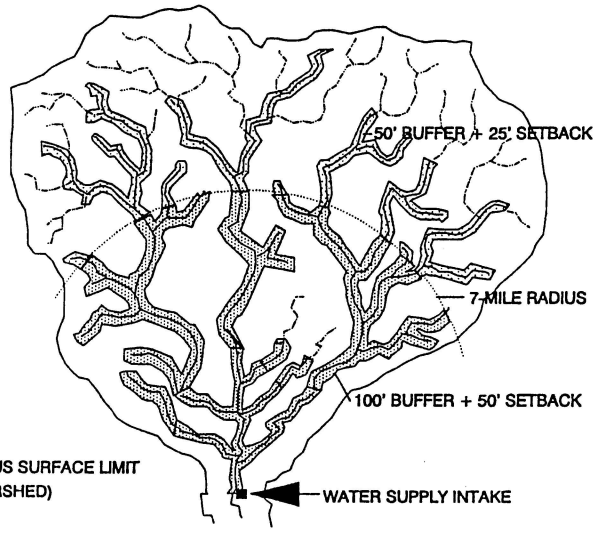
GEORGIA WATER SUPPLY RESERVOIR STANDARDS
for
WATERSHED PROTECTION

Source: Georgia Environmental Protection Division

FIGURE 2

WATER SUPPLY INTAKE WATERSHED

LESS THAN 100 SQUARE MILES



GEORGIA WATER SUPPLY INTAKE CRITERIA
for
WATERSHED PROTECTION

Source: Georgia Environmental Protection Division